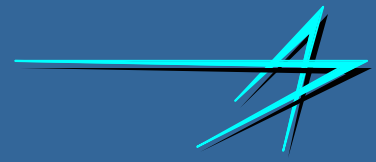




Lockheed Martin



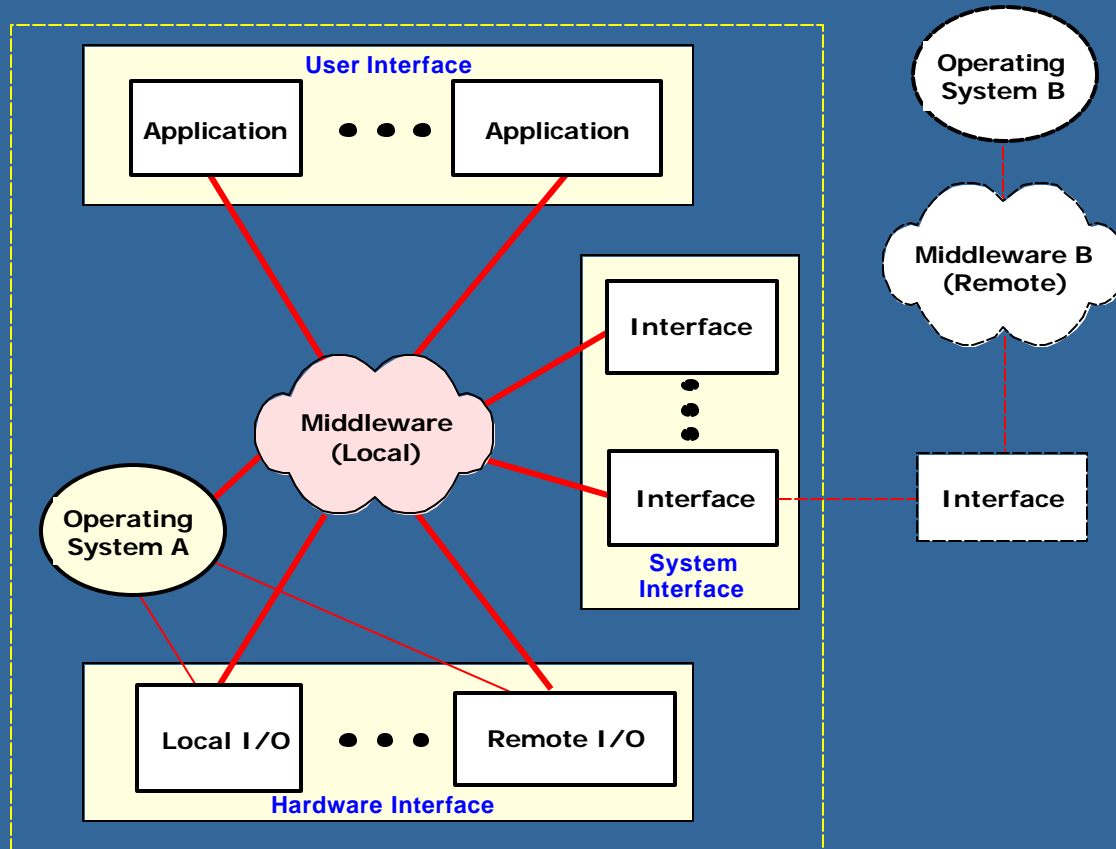
# *Software Supportability and Maintainability*



Mukesh M. Patel & Gareth D. Christian

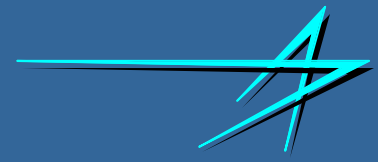


# Typical Multitasking Software





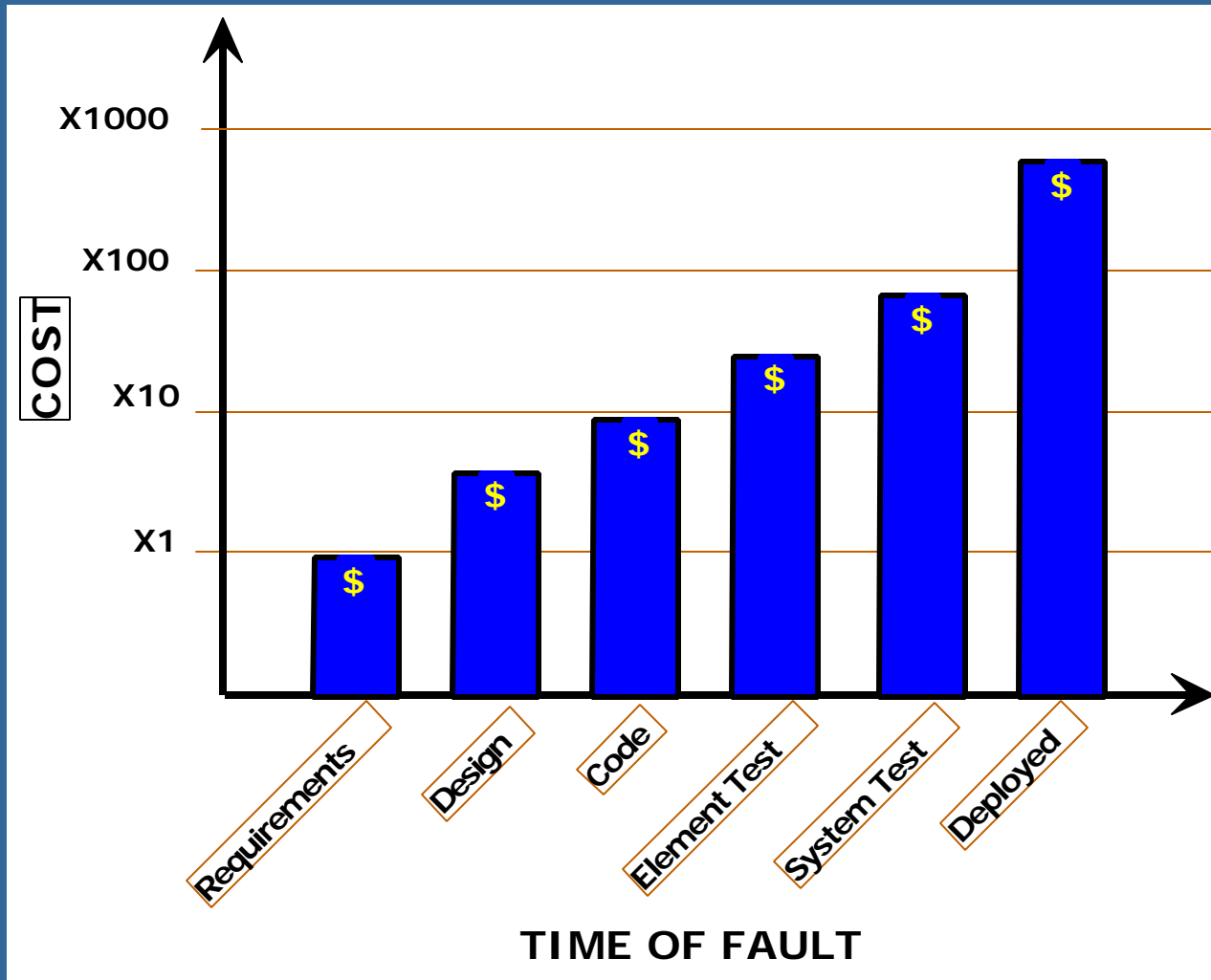
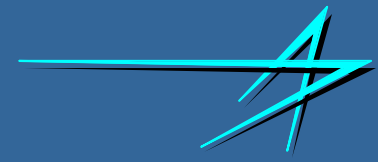
# COTS Issues



- ◆ Configuration Management
- ◆ Diminishing Manufacturing Supplies
- ◆ Technology Refresh
- ◆ Estimating Software Costs

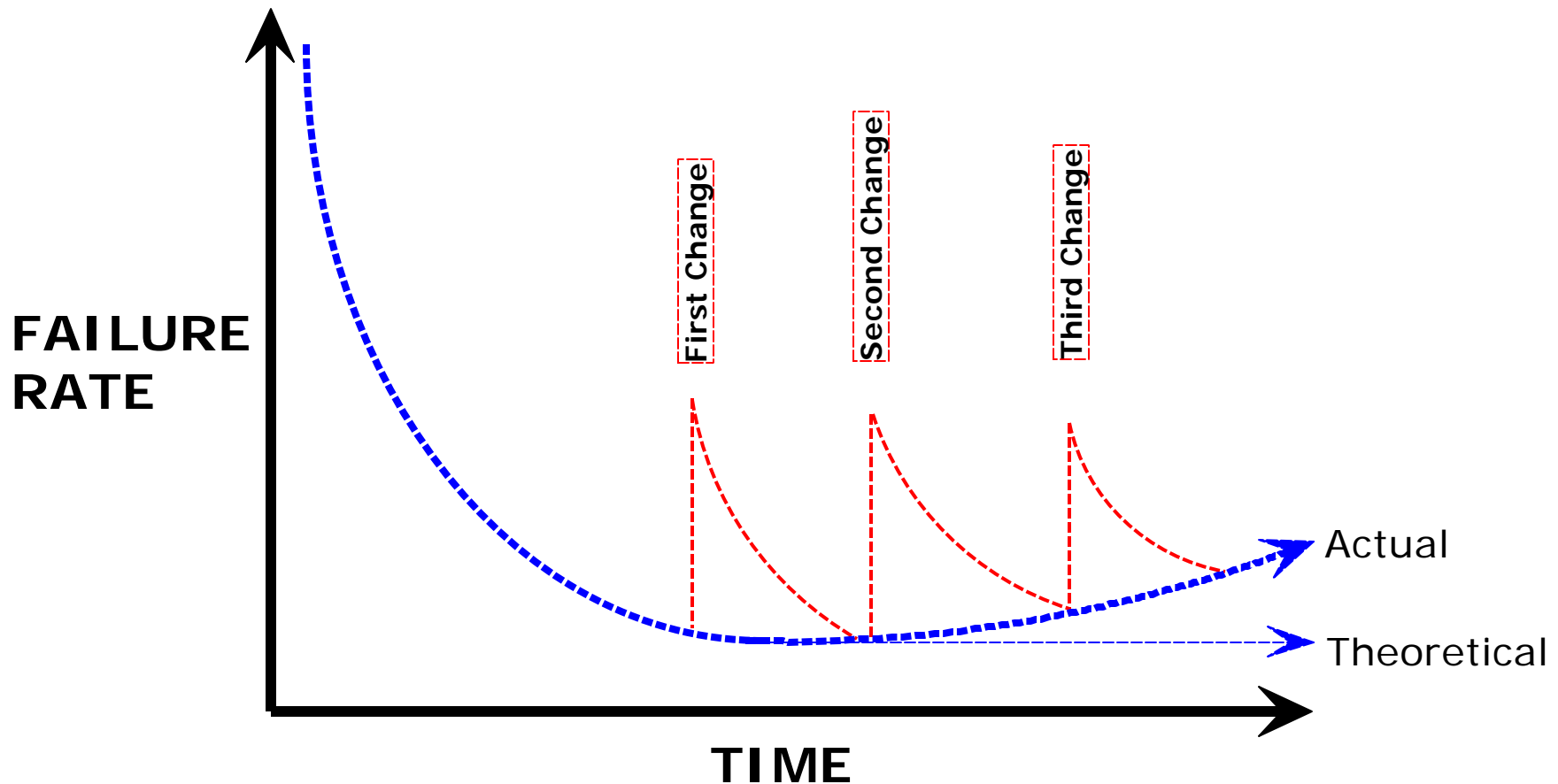
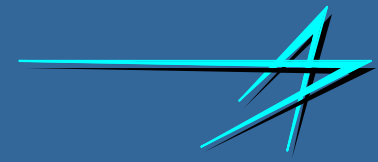


# Cost of Correcting Faults by Program Phase



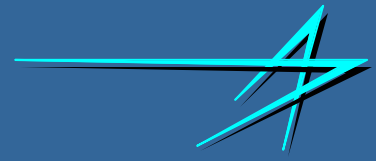


# Increasing Failure Rate Due to Change Software





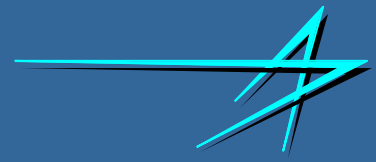
# Problems Associated with COTS Software



- ◆ **Identifying Compatible COTS Software Releases and Versions**
- ◆ **Adverse Supplier Changes**
- ◆ **Licenses, Warranties, and Rights**
  - Copy according to licensing restrictions.
  - Identify authorized sites/users of licenses.



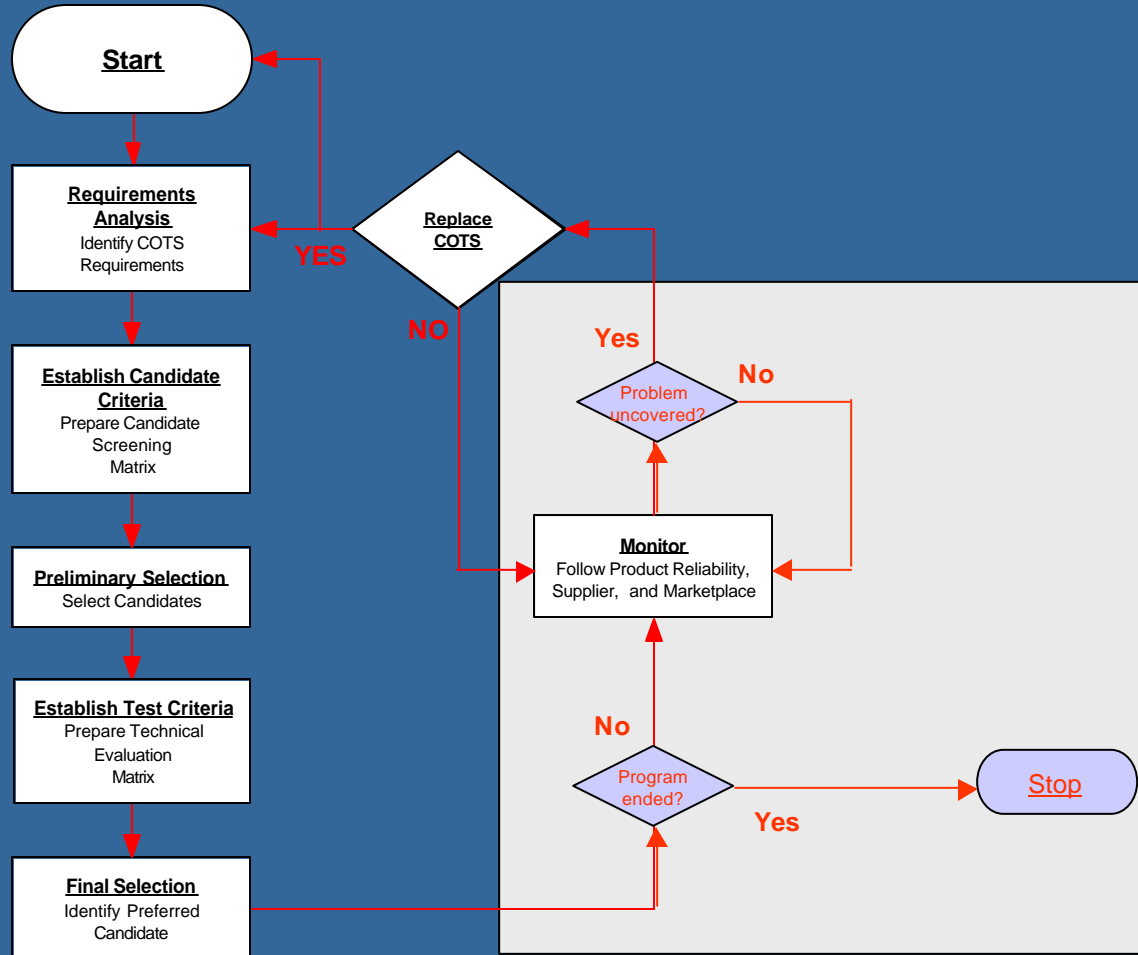
# Avoiding Diminishing Manufacturing Supplies Risk



- ◆ **Know marketplace and technology**
- ◆ **Maintain close working relationship with the supplier**
- ◆ **Test all software received**
- ◆ **Reject non-conforming software**

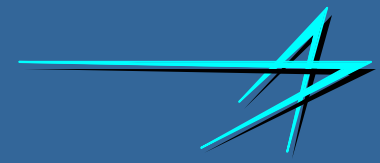


# Selection Process Flowchart





# Example of COTS Component Requirements Selection Form



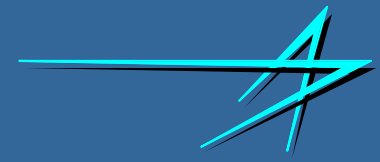
Software trade name or other identifier		
Type of application		
Equipment/LRU where used		
Operating System		
Sites where used		
Name of this program		

	Name	Score	Comment
		1=Unimportant to 5=Critical	
	Language		Source code language, if known
	Reuse		Name of Program(s) where currently used
	Memory usage		Amount of memory for binary
	Size of new code required		Amount of new/modified code needed
	New code language		Language used to develop new code
	Diagnostics		Does COTS component include diagnostics?
	Product availability		Is COTS component easily obtained?
	Integration complexity		Is COTS component easy to install?
	Technology maturity		Does COTS component use proven technology
	Pages of documentation		How many pages provided?
	Quality of documentation		Is documentation usable?
	Architecture		Open Architecture, proprietary or other?
	Cost		Cost per installation/Site/Total (?)
	Total Score		



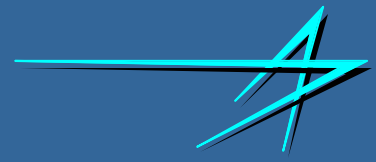
# Summary



- ◆ **Analyze selection attributes, test and development data**
  - Identify and record COTS requirements
  - Record preliminary selection criteria
  - Test candidates and record test data
  - Select best-qualified product
  - Record development, integration, and operational problem and failure data
  - Analyze recorded data for trends or changes in trends
  - Monitor vendor and marketplace



# Title



- ◆ Level one
  - Level two
    - Level three
      - Level four